

**MTM**

## Knowledge Creation and Knowledge Management in Inter-Organizational Innovation Networks

**Claudia Loebbecke**

Department of Business, Media and Technology Management  
University of Cologne, Germany  
claudia.loebbecke@uni-koeln.de  
www.mtm.uni-koeln.de

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**MTM**

## Agenda

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases
  - Conclusions and Lessons Learnt from Cases
- ~~• Inter-Organizational Knowledge Sharing
 
  - Framework for Investigation
  - One Brief Case~~
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**MTM**

## Agenda

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases: Astra Zeneca and METRO Group
  - Conclusions and Lessons Learnt from Cases
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**MTM**

## Knowledge Management: Two Schools of Thought

|                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Sharing-enabled knowledge</b></p> <ul style="list-style-type: none"> <li>• At center of popular KM</li> <li>• Improvements in team effectiveness at low cost</li> <li>• Rewarded by changes in culture and morale</li> <li>• Communities of Practice</li> </ul> | <p><b>Results-driven knowledge</b></p> <ul style="list-style-type: none"> <li>• Integrating knowledge into management</li> <li>• Required for achieving strategic impact (CEO / top manager perspective)</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**MTM**

## Knowledge Basics

Knowledge creation and management *costly and complex* (Demsetz 1988)

*Critical resource* in competitive settings (Drucker 1993)

*Creation, transfer, assembly, integration, and exploitation* of knowledge assets essential organizational capabilities (Teece 1998)

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**MTM**

## Knowledge as Resource

Knowledge as intellectual resource, not naturally scarce (Suchmann 1989; Dean, Kretschmer 2007)

|                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Resource-Based View</b> (Wernerfelt 1984; Barney 2001)</p> <ul style="list-style-type: none"> <li>• Knowledge as competitively relevant resource</li> <li>• Threat of leakage and dilution of valuable assets</li> </ul> | <p><b>Relational View</b> (Liebeskind et al. 1996; Dyer, Hatch 2006)</p> <ul style="list-style-type: none"> <li>• Sharing of capabilities and knowledge</li> <li>• Competitive advantage from re-combining commonly available knowledge</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Co-opetition: Simultaneous cooperation and competition (Brandenburger, Nalebuff 1996)

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Co-opetition: Relevant Questions**

- What to share?
- With whom?
- When?
- Under what conditions?

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Agenda**

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases: Astra Zeneca and METRO Group
  - Conclusions and Lessons Learnt from Cases
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Agenda**

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases: Astra Zeneca and METRO Group
  - Conclusions and Lessons Learnt from Cases
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Research Question**

Challenge of cost-effective knowledge creation and absorption

↳ Inter-organizational knowledge networks

Why and how do organizations initiate or get involved in such networks despite potential competitive counter-arguments ?

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Requiring Inter-Organizationally Mutual Understanding of Knowledge**

Each organization with *idiosyncratic knowledge* and *jargons* creating formative context

- Different understanding of knowledge (Pentland 1992)
- Hampered knowledge absorption (Reagans, McEvily 2003)
- Common frame of reference as contextual framework
- Facilitated interpretation of transferred knowledge (Weick 1995)

☹️ ☺️

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Issues of Knowledge Exchange**

**Knowledge 'Sociality'**  
Embedded within routines, culture, and norms (Spender 1996)

↳ Not readily tradable

No equilibration or transfer via factor markets ⇒ Relations necessary

**BUT**  
Intra-organizational learning via interaction facilitating knowledge absorption (Larsson et al. 1998)

Interaction based on shared understanding; Extrapolation to new context (Nonaka 1994; Reagans, McEvily 2003) **OR** Interaction based on radically different interpretative models (March 1991)

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Inter-Organizational Knowledge Creation**

- Externalization of Knowledge Creation
- Inter-Organizational Knowledge Network Formation
- Specific Interaction Schemes for Mutual Understanding
- Avoidance of Core Competence Leakage

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Agenda**

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases: Astra Zeneca and METRO Group
  - Conclusions and Lessons Learnt from Cases
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**AstraZeneca Case**

**Company Profile**

- Pharmaceutical company
- Resulting from '99 merger of Swedish Astra AB and British Zeneca PLC
- > 60,000 employees
- '08 revenues of ~ \$ 31.6 bill. and EBIT of \$ 11.8bill.

**Industry Challenge**  
Increasingly strict FDA requirements causing difficulties for pharmaceuticals' R&D labs

**Industry Approach**  
Contracting knowledge creation tasks to academic/non profit laboratories (Roth 2003)

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**AstraZeneca's Knowledge Network**

**Five Groups**

- Statistics
- Epidemiology
- Medicine & Science
- Health Economy
- Quality of Life

**Clinical Science Unit (CSU)** → Contracting out discovery-development process → **Contract Research Organizations (CROs)**

- All groups staffed with highly qualified, scientific personnel
- One CSU expert per project
- CSU re-combining newly created knowledge from various CROs for specific drug discovery-registration process

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**AstraZeneca's Knowledge Creation Process**

Request for specific part of discovery-development process

**Project Leader**  
Expert with generic, relevant knowledge

**Personal Network**  
Experts in scientific research centers

Monitoring and managing body of knowledge

Provision of specialized knowledge

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**METRO Group Case**

**Company Profile**

- World's third largest retailer
- '08 sales of ~ \$ 111 bill. and EBIT of \$ 3.1 bill.
- Wholesale, supermarket, hypermarket, department store, and electronics discounter sales divisions, and several central service units

**Industry Challenge**  
Competitive pressure leading retailers towards differentiation

**METRO Group Approach**  
Offering customers innovative, increasingly individualized and comfortable shopping experience

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**METRO Group Case**

**Objective**  
Establishing end-to-end infrastructure chain, facilitating innovative IT for in-store applications

**METRO Group IT (MGI)**

- Meetings and conferences with external experts
- Initiated inter-organizational knowledge network called MG Future Store Initiative (FSI)
- Re-combining knowledge from external FSI members in lab called MG Innovation Center

**MGI**

**Future Store Initiative**

Technology vendors  
Consultants  
Brand manufacturers  
Etc.

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Content Provision Devices**

Back Up

... for faster & easier shopping

... for new form of customer communication

Personal Shopping Assistants (PSAs) & Customer Cards

Intelligent Scales

Checkout via PSA & Self-Checkout

Info Terminals

Electronic Advertising Displays

Electronic Price Labeling

PDA's for FS employees

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Partners in Future Store Initiative (FSI)**

Back Up

Intel  
Cisco Systems  
Fujitsu Siemens  
Hewlett Packard  
Philips  
DHL  
Boston Consulting Group

IBM  
SAP  
Oracle  
Pironet  
Microsoft  
Kraft Foods  
Coca Cola  
Henkel  
Johnson & Johnson  
Procter & Gamble

**METRO Group's Future Store Initiative**

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Inter-Organizational Knowledge Creation**

Externalization of Knowledge Creation

Inter-Organizational Knowledge Network Formation

Specific Interaction Schemes for Mutual Understanding

Avoidance of Core Competence Leakage

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Externalization of Knowledge Creation**

**AstraZeneca**  
Gaining specialized external knowledge with different perspectives from Contract Research Organizations (CROs)

**METRO Group**  
Gathering expertise from specialized experts with different industry perspectives

Externalization of knowledge creation feasible and advantageous

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Inter-Organizational Knowledge Network Formation**

**AstraZeneca**  
Strategic flexibility through on-demand access to knowledge creation

**METRO Group**  
MGI as interface balancing METRO Group interests with interests of external experts

Inter-organizational knowledge networks complex, but providing cost and flexibility advantage

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Specific Interaction Schemes for Mutual Understanding**

|                                                                                                                                                                                       |                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <p><b>AstraZeneca</b><br/>Scientific personnel specifically suited for initiating and coordinating knowledge creation via interaction with Contract Research Organizations (CROs)</p> | <p><b>METRO Group</b><br/>Organizing events for enhanced interaction among inter-organizational network members</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|

Similar educational background and face-to-face encounters improving mutual understanding and knowledge transfer

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Avoidance of Core Competence Leakage**

|                                                                                                                    |                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <p><b>AstraZeneca</b><br/>Creating new context-specific knowledge by re-combining externally created knowledge</p> | <p><b>METRO Group</b><br/>Aiming for time advantage by taking technology leadership position</p> |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|

Position as knowledge aggregator or early mover avoiding fast depreciation of knowledge

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Agenda**

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases: Astra Zeneca and METRO Group
  - Conclusions and Lessons Learnt from Cases
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Lessons Learnt from Two Cases: Inter-Organizational Knowledge Creation**

- Externalization of knowledge creation feasible and advantageous
- Inter-organizational knowledge networks complex, but providing cost and flexibility advantage
- Similar educational background and face-to-face encounters improving mutual understanding and knowledge transfer
- Position as knowledge aggregator or early mover avoiding fast depreciation of knowledge

Inter-organizational knowledge creation as *strategic opportunity* in markets increasingly depending on knowledge

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Conclusions from Two Cases: Inter-Organizational Knowledge Creation**


- Shift to knowledge creation in inter-organizational networks based on complexity and cost arguments
- Organizations benefiting in terms of cost savings and specialized knowledge from inter-organizational knowledge networks
- No transactional, but relational knowledge transfer
- Experts with similar educational background required for
  - Creating common formative context
  - Allowing for proper interpretation of knowledge
- Knowledge reassembly capabilities and speed of innovation as core competencies

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

**Agenda**

- Inter-Organizational Knowledge Basics
- Inter-Organizational Knowledge Creation
  - Framework for Investigation
  - Two Brief Cases: Astra Zeneca and METRO Group
  - Conclusions and Lessons Learnt from Cases
- Insights and Opportunities

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne


 **Insights**

Inter-organizational collaboration / learning needed and wanted !  
 ➔ Positive measurable results !

Stopping of fruitful inter-organizational knowledge exchange due to unwanted leaking / competitive impact

Active, strategic management of inter-organizational knowledge exchange considered to be a serious success factor, but very few outlined 'strategies'


© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

 **Issues and Opportunities**

**Complicating empirical investigations**

- Finding *explicit* strategies
- Value *assessment* of knowledge
- 'Knowledge *not* to be shared'

BUT ...

**Plenty of Opportunities**  
 to take knowledge creation and management issues to Internet, Web 2.0, Mobile, B-2-B and B-2-C ! 

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne

 .... Questions, Comments, Complaints ?

**Thanks for your attention !**

✉ [claudia.loebbecke@uni-koeln.de](mailto:claudia.loebbecke@uni-koeln.de)

© Prof. Dr. Claudia Loebbecke - Business, Media & Technology Management - Univ. of Cologne